A Move Analysis of English Research Article Introductions in Thai and International Medical Journals

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Abstract

As English is clearly acknowledged as an international language of medicine and research, use of the English language has increased in both local and international medical journals. Therefore, this study was conducted to compare the moves and steps in the Introduction sections between Thai and international medical journals. Two comparable, specialised corpora of 50 English medical research article introductions were compiled as data for this move analysis. The analytical framework was developed based on the adaptation of 5 previous move analysis models: Swales's 1990 and 2004 models, Nwogu's 1997 model, and Kanoksilapatham's 2005 and 2007 models. The findings reveal that both corpora share some similarities. There are three moves: Move 1 (Presenting background information), Move 2 (Preparing for the present study) and Move 3 (Introducing the present study) and the number of steps under these three moves are the same. However, there were outstanding disparities in terms of frequency of occurrence and move patterns.

Key words: *introduction section, move analysis, research articles, medical journals*

1. Introduction

Publication of research studies is crucial and demanding for many scholars. Having a manuscript published is a key to peer recognition and career promotion. For non-native English-speaking (NNES) authors, there are two language alternatives for writing a research article: English and native language (L1). However, publication in an international journal brings NNES writers several advantages such as showing superior quality and having a wider audience. To publish internationally, the English language is required as it is an international language of research and publication (Flowerdew, 1999).

Non-native English-speaking (NNES) authors often have disadvantages. According to Mišak, et al. (2005), NNES authors cope with serious problems besides the English language use when they write a manuscript. These problems are their limited knowledge of study designs, poor narrative organization and presentation, and unawareness of the specificities of the medical scientific language. For the organization, most journals require well-structured manuscripts. Generally, the structure is IMRD, which comprises Introduction, Methods, Results, and Discussion. However, this advice is too broad. It would be beneficial if there were detailed descriptions and examples of how good research articles are written, showing the rhetoric organization at a level deeper than IMRD structure.

Among the four sections, the Introduction is considered a difficult part for nearly all writers (Swales, 1990). According to Cho's (2009) study, writers have a hard time when they write the Introduction section. The writers need to make a lot of decisions while writing this part such as the amount and type of background knowledge, how to persuade the audience, and the directness of the approach they should adopt into their writing. Thus, this research focuses on the Introduction section of medical research articles.

Like other disciplines, authors of medical research articles face the same problems. Thai medical researchers are capable of conducting studies of equal quality to those produced in other countries. However, the number of articles written by Thai researchers in international journals is still limited (Sinlarat, 2004). The English abilities of Thai medical authors are not insufficient because they can publish their research in English, as several medical journals accept only English-written manuscripts. Thus, it is suspected that unfamiliarity with the rhetorical organization of a journal may be a cause of limited publication.

2. Move analysis

Move analysis has been used to study the rhetorical organization of many genres. It is the study of a text segment by identifying communicative functions within text segments. Swales (2004) defines a "move" as "a discoursal or rhetorical unit that performs a coherent communicative function, which is a purpose to communicate of that text segment such as indicating a gap and announcing present research, in a written or spoken discourse". According to Nwogu (1997), move refers to "a text segment made up of a bundle of linguistic features (lexical meaning, propositional meanings, illocutionary forces, etc.) which give the segment a uniform orientation and signal the content of discourse in it". Based on this definition, a text segment is realized as a move if there is the association between a function and the linguistic clues. After a move in a text segment is identified, it can be identified further as a step. A "step" is a subunit of a move

that is one of the writer's choices to support the move's communicative function, so each move consists of a number of steps.

Move analysis can be done by two approaches: top-down approach and bottom-up approach (Biber, Connor & Upton, 2007). In the top-down approach, the analytical framework including communicative functions is developed first, and then the text segmentation and functional identification are done, followed by a linguistic analysis. For the bottom-up approach, the segmentation is done first, then a linguistic analysis is performed, and communicative functions are described later. Although a bottom-up approach seems more objective, it may not be the best move analysis for every case. Swales (2004) agreed with Nwogu (1997) that move identification is likely to be a bottom-up process, but it is also influenced by the schema about the structure of text-types and genres. According to a comparative study by Lieungnapar and Watson Todd (2011), most of the moves found by these two approaches are similar. They suggest that top-down approach is appropriate for an investigation focusing more on the context as it allows researchers to analyse texts as context. As medical research articles are texts in the context of the medical field, shared knowledge of the medical discourse community is essential. Therefore, this study mainly uses the top-down approach. To make the coding process more objective, linguistics clues were also used.

Due to the importance of English language both in local and global contexts, many contrastive move analysis studies have been carried out and the results are interesting. First, a comparative study conducted by Im-o-cha (2004) shows that introductions written in Thai differ from those written in English in terms of move-ordering patterns even though all three moves as described in Swales' CARS (Create a Research Space) model appeared in both corpora. Second, Loi and Evans (2010) compared the organization of introductions of English L1 and Chinese L1 research articles in the field of educational psychology. Some steps, such as indicating a gap and claiming the significance of the study, were less employed in Chinese introductions. Similarly, Sheldon (2011) investigated research article introductions written by English L1, English L2, and Spanish L1 writers. As expected, moves and steps of English L1 texts are similar to Swales's (2004) CARS model, but moves and steps of Spanish L1 texts reflect some culture-specific writing style. For the English L2 group, there is the combination between academic English culture and native language norms.

ElMalik and Nesi (2008) compared moves and steps in research articles written by British and Sudanese medical researchers. There is one step that was not identified in Nwogu's (1997) study. In *Move 4 Describing data collection*, an additional step *"Notification of ethical clearance"* was found in about half of their corpora (40% in British and 50% in Sudanese). Finally, Sayfouri (2010) compared moves and steps of research articles from ISI English-American (E-A), ISI Iranian, and non-ISI Iranian medical journals by

using Nwogu's 1997 model. The analysis illustrated that the two groups of Iranian articles used significantly fewer numbers of *Step 1.2 Reference to main research problem* of *Move 1*, *Step 2.2 Reference to limitations of previous research* of *Move 2* and *Step 3.2 Reference to main research procedures* of *Move 3* in their Introduction sections, compared to E-A articles.

These previous studies on move analysis illustrate the variations in rhetorical organization. Until now, there is no comparative study on moves and steps of medical research articles published in Thai medical journals and international medical journals. Thus, move analysis in this research will reveal the similarities and differences between those journals.

This study, therefore, aims to find out the answer to the following research questions:

1. What are the moves and steps of the Introduction sections in English medical research articles published in Thai medical journals?
2. What are the moves and steps of the Introduction sections in English medical research articles published in international medical journals?
3. What are the similarities and differences in the moves and steps between English medical research article introductions published in Thai medical journals and international medical journals?

3. Methodology

3.1 The Corpora

Two comparable, specialised corpora were created as data for this study. The first corpus was compiled from the Introduction sections of English-written medical research articles in five peer-reviewed medical journals in Thailand, and the second corpus was from the Introduction sections of English-written medical research articles in five international peer-reviewed medical journals.

Nwogu's (1997) criteria for selecting medical research journals were used in this study. These criteria are representativity, reputation, and accessibility. Based on these criteria, five Thai medical journals, including *Thai Journal of Health Research*, *Thai Journal of Hematology and Transfusion Medicine*, *Thammasat Medical Journal*, *Srinagarind Medical Journal*, and *Songklanagarind Medical Journal*, were selected from the lists of approved international and national journals by the Commission on Higher Education (CHE), Thailand and the database of Thai-Journal Citation Index (TCI) Centre. For the international medical journal corpus, the five refereed medical journals include *The New England Journal of Medicine*, *The Lancet*, *The Journal of the American Medical Association*, *The British Medical Journal*, and *The Journal of Clinical Investigation*. These journals are in the ISI Web of Science database and they

are the same journals as in previous move analysis studies (Nwogu, 1997; Li and Ge, 2009).

For the selection criteria of research articles, the type of article must be original a research article with an IMRD structure. Next, the content of the research article can be in any category, ranging from molecular medicine to subspecialties. Moreover, the research article must have been published during 2005-2009 period. Finally, the length of the Introduction section must be in the range of 250-600 words and the number of paragraphs in the Introduction section must not exceed 6 paragraphs.

According to these criteria, in the Thai medical journal corpus, there are 25 English medical research article introductions from five Thai medical journals. The total number of words is 8,609 words. The international medical journal corpus was compiled from 25 English medical research article introductions from five international medical journals. This corpus consists of 9,765 words, so the total number of words used in this study is 18,374 words.

3.2 Data Analysis

The analytical framework of this study was modified from 5 previous move analysis models: Swales's 1990 and 2004, Nwogu's 1997, and Kanoksilapatham's 2005 and 2007 models (see Appendix 1). The moves and steps from these models were combined and used to code texts in the preliminary study. After that, the results were used to develop the finalized version. The analytical framework and the explanation are shown in Appendix 2. To identify move and step, the inference from the text was mainly used as this study employed the top-down approach, but linguistic clues were also used as supportive information.

Even though linguistic clues were considered in the coding process, the top-down genre analysis approach is usually criticized for its reliability since the coding scheme is set up by the researchers. To deal with this, an inter-coder, who has both medical and linguistic knowledge, was invited. The inter-coder was asked to code five introductions (10 percent of the corpora). Before coding, the inter-coder studied the coding framework thoroughly and discussed with the researchers to ensure that the inter-coder clearly understand the coding criteria. After the inter-coder's coding, the coding results done by the inter-coders and the researchers were compared. The efficiency of the reliability of coding was high enough (88%) to confirm the reliability of the analysis of the entire corpora. Then, the coding results from the two corpora were analysed in terms of frequency of occurrence and move patterns. Moves were categorized as obligatory, conventional and optional, using the same cut-off frequencies as in Rasmeenin's (2006) and Amnuai and Wannaruk's (2013) studies shown in Table 1. Patterns of moves and steps were identified and categorized as either linear or cyclical.

Table 1 Categories of moves and steps based on frequency of occurrence

Category	Frequency of occurrence
Obligatory	100%
Conventional	60-99%
Optional	less than 60%

4. Findings and Discussion

4.1 Moves and steps in Thai medical journals

4.1.1 Frequency of move and step occurrence

From Appendix 3, we can see that all three moves were identified in the Thai medical journal corpus. *Move 1 Presenting background information* and *Move 3 Introducing the present study* occurred in 100% of the selected introductions; therefore, they are obligatory. *Move 2 Preparing for the present study* was found in 88% of the corpus. It is in the conventional category. The findings show that the English Introductions in Thai medical journals were written in accordance with the three-move CARS model.

For the step occurrences, all three steps in the analytical framework were identified in *Move 1 Presenting background information.* All four steps were identified in *Move 2 Preparing for the present study* and all 6 steps were identified in *Move 3 Introducing the present study*.

In *Move 1 Presenting background information, Step A Claiming centrality* and *Step B Making topic generalization* were found in all introductions, so they are obligatory. However, *Step C Referring to previous research* is a conventional step because it was found in 72% of the corpus. It can be assumed that the first two steps are considered more important than the last step because *Step A Claiming centrality* attracts readers' attention and *Step B Making topic generalization* provides enough background of the research field to readers. *Step C Referring to previous research* shows evidence of previous studies and is regarded as a supplement to *Step A* and *Step B.*

For *Move 2 Preparing for the present study*, the first four steps were identified in different percentages. Among the four steps identified, *Step A Indicating gap* occurred with the highest percentage (44%). *Step B Giving positive justification* and *Step C Indicating contrastive result* were found in similar percentages of introductions, 32% and 28%, respectively. *Step D Counter-claiming* had the lowest percentage (8%).

In *Move 3 Introducing the present study*, *Step A Stating objective* was the most frequently employed step and was regarded as conventional. Its percentage (80%) is four times higher than *Step B Announcing present research* (20%) and five times higher than *Step C Presenting research questions or hypotheses* (16%), respectively. The remaining steps in

this move were found in a small number of introductions: two articles employed *Step F Stating the value of the present research* (8%), one article employed *Step D Describing procedure or research methodology* (4%) and one article employed *Step E Describing finding* (4%).

Based on the above findings, among the three moves, *Move 1 Presenting background information* is the most important move as it occurred in all introductions of this corpus and almost all steps (two out of three) in this move are obligatory. Thus, to produce *Move 1, Step A Claiming Centrality* and *Step B Making Topic Generalization* are necessary components. *Move 2 Preparing for the present study* is important, but it can be omitted (frequency of occurrence of 88%). Moreover, all four steps in this move are just optional. This means a writer can play with step selection from these choices. This is why the percentages of these steps are varied. Thus, its importance is less than that of *Move 1*. The last move, *Move 3 Introducing the present study*, is also important because of its 100% frequency of occurrence. This move is similar to *Move 2* in that there are several steps. However, *Step A Stating objective* in *Move 3* is conventional while other steps are optional.

4.1.2 Move patterns

Six move patterns were identified from the Thai medical journal corpus (Appendix 4). Linear patterns and cyclical patterns identified are in similar percentages of the corpus, 52% and 48%, respectively (Appendix 5). The most frequently used linear pattern was M1>M2>M3, as appeared in Swales's 1990 CARS model. This pattern occurred in 40% of the corpus. The most frequently used cyclical pattern was M1>M2>M1>M3 (24%). This pattern represents repetition of *Move 1* to increase specificity similar to Swales's 2004 revised model.

4.2 Moves and steps in international medical journals

4.2.1 Frequency of move and step occurrence

As illustrated in Appendix 3, all three moves in the analytical framework were identified in the international medical journal corpus. *Move 1 Presenting background information* and *Move 2 Preparing for the present study* in all research articles (100%), so they are obligatory. *Move 3 Introducing the present study* were found in a relatively similar number (96%), so it is regarded as a conventional move.

For the step occurrence, all three steps were found in *Move 1 Presenting background information*. Four steps were found in *Move 2 Preparing for the present study* and six steps were found in *Move 3 Introducing the present study*. The steps found in this corpus are the same as those found in the Thai medical journal corpus.

In the first move, *Presenting background information*, *Step B Making topic generalization* was identified in all introductions, so this step is obligatory. *Step A Claiming centrality* and *Step C Referring to previous research* are conventional. They were found in 96% and 84% of the corpus, respectively.

In *Move 2 Preparing for the present study,* the most employed step is *Step A Indicating gap* (68%) and it is conventional. *Step D Counter-claiming* (40%), *Step C Indicating contrastive result* (28%), and *Step B Giving positive justification* (12%) are optional. This indicates *Step A Indicating gap* is an effective writing strategy in the view of authors of international medical journals.

For *Move 3 Introducing the present study*, the only conventional step is *Step B Announcing present research* with the highest percentage (80%). *Step A Stating objective* (40%) is in the second rank. *Step C Presenting research questions or hypotheses, step E Describing finding,* and *Step F Stating the value of the present research* were identified with the same percentage (12%). *Step D Describing procedure or research methodology* occurred in only 4% of the corpus. The authors may think that research methodology should be described in the Methods section, not the Introduction section.

4.2.2 Move patterns

Ten move patterns were identified from the international medical journal corpus (Appendix 6). The first three patterns occurred in relatively equal percentages: M1>M2>M3 (24%), M1>M2>M1>M3 (24%), and M1>M2>M1>M2>M3 (20%). In terms of pattern category, only the first pattern is linear. According to Appendix 7, cyclical move patterns (76%) were identified three times as often as linear move patterns (24%). It can be assumed that recycling move patterns are more conventional for writing in international medical journals.

4.3 Similarities and differences in the moves and steps between Thai and international medical journals

4.3.1 Frequency of move and step occurrence

For the move occurrence, *Move 1 Presenting background information* was employed in the highest percentage (100%) and it is regarded as an obligatory move in the two corpora. This demonstrates the importance of *Move 1. Move 2 Preparing for the present study* is obligatory in the international corpus but it is conventional in the Thai corpus. On the contrary, *Move 3 Introducing the present study* is obligatory in the Thai corpus but it is conventional in the international corpus.

For the step occurrence, we can see that, in *Move 1 Presenting background information, Step B Making topic generalization* in both corpora are obligatory. *Step A Claiming centrality* receives more importance in Thai journals (obligatory) than international

journals (conventional). *Step 3 Referring to previous research* in both corpora are also required but they are given lesser importance and regarded as a conventional step (72% and 84%).

For *Move 2 Preparing for the present study*, the writers of Thai journals focus on using *Step A Indicating gap, Step B Giving positive justification*, and *Step C Indicating contrastive result* while the writers of international journals stress the use of *Step A Indicating gap* and *Step D Counter-claiming*. *Step B Giving positive justification* was remarkably found in the Thai medical journals more than the international journals (32% vs. 12%) while *Step A* and *Step C* were found in the Thai corpus less than the international corpus**.**

For the international journals, *Step A Indicating gap* and *Step D Counter-claiming* were found highly in this corpus. (This exhibits that criticising by indicating gap or claiming weak points of other studies is crucial for publishing in international medical journals, a highly competitive context.) *(Criticism is also important because it reinforces rigor into the scientific process.)*

In *Move 3 Introducing the present study*, the writers of Thai and the international medical journals focus on the different steps. *Step A Stating objective* is given profound importance in the Thai journals (80% of the Thai corpus) while *Step B Announcing present research* (80% of the international corpus) are much more dominant in international medical journals. The rest of steps in this move are optional and are not given the same importance as *Step A* and *Step B*.

Below are some examples of *Step A,* where the writers of Thai journals are likely to state an objective of their research explicitly in *Move 3*.

> *Therefore, this study aims to determine the frequencies of CYP2C9 polymorphisms in Thai people and functional effects of CYP2C9 genotype in responsible for warfarin dosage.*
>
> (*Step A Stating objective* of *Move 3,* I2)

> *The purpose of this investigation was to study the effects of rifampicin and ketoconazole on the pharmacokinetics of a single oral dose of DEC in healthy volunteers.*
>
> (*Step A Stating objective* of *Move 3,* I18)

For the international journals, the authors tend to announce their research *(Step B)* by describing what they set out to do or what their research provides, instead of directly stating the purpose of a study as in *Step A*.

We undertook a large-scale, multi-year, population-based cohort study with a comprehensive analysis of sepsis, propensity-based matching to minimise confounding, and tracer analyses to assess the specificity of the findings.

(*Step B Announcing present research* of *Move 3,* I2)

This report provides information on prostate-cancer incidence, staging, and mortality in both study groups during the first 7 to 10 years of the study.

(*Step B Announcing present research* of *Move 3,* I15)

4.3.2 Move patterns

In terms of move cyclicity, the introductions in the international medical journal corpus (76%) show more cyclical patterns than those of the Thai medical journal corpus (48%) (Appendix 8).

The findings confirm the feature of move recycling in Swales's 2004 revised CARS model. Additionally, the introductions from international journals are more consistent with this model because the revised CARS model was developed based on research articles in international journals. On the contrary, half of the Introductions from Thai journals still employ a linear move pattern as they appeared in Swales's 1990 model.

5. Conclusion

The findings of this study show that the Introductions of research articles in Thai medical journals and international journals share some similarities but differ in some degrees. Although the move analysis models of these two sets of journals are consistent with the three-move model of Swales (1990, 2004), there are some disparities that should be taken into consideration in the process of writing a research article.

Firstly, to teach medical professionals to write the Introduction section of a research article, the main components should be stated: *Move 1 Presenting background information*, *Move 2 Preparing for the present study*, and *Move 3 Introducing the present study*. These moves are required in both corpora. Secondly, the concept of move pattern should be introduced. The teacher should describe the linear M1>M2>M3 pattern first, and then tell students that move recycling can occur, resulting in cyclical patterns. Finally, step preferences should also be taught. A step differently serves as a focus in the two corpora, especially in *Move 2 Preparing for the present study* and *Move 3 Introducing the present study*.

One final caveat is that Thai medical scholars should be aware of the differences in the rhetorical organization of different target journals. To publish internationally, the norms of writing for Thai journals should not be the factor that hinders the opportunity of

Thai researchers. Thus, the knowledge of structural organization of a research article would be an effective solution to the problem of disseminating research to international journals.

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Appendix 1 Comparison of move models of research article introductions

Move/Step	Swales 1990	Nwogu 1997	Swales 2004	Kanoksilapatham 2005	Kanoksilapatham 2007
Move 1	**Establishing a territory**	**Presenting Background Information**	**Establishing a Territory** (citations required)	**Announcing the Importance of the Field**	**Announcing the Importance of the Field**
○ Step 1	Claiming centrality	Reference to established knowledge in the field	Topic generalizations of increasing specificity	Claiming the centrality of the topic	
○ Step 2	Making topic generalization(s)	Reference to main research problems		Making topic generalizations	
○ Step 3	Reviewing items of previous research			Reviewing previous research	
Move 2	**Establishing a Niche**	**Reviewing Related Research**	**Establishing a Niche** (citations possible)	**Preparing for the Present Study**	**Preparing for the Present Study**
○ Step 1	Step 1A: Counter-claiming	Reference to previous research	Step 1A: Indicating a gap	Indicating a gap	
	Step 1B:Indicating a gap		Step 1B: Adding to what is known		
	Step 1C:Question-raising				
	Step 1D:Continuing a tradition				
○ Step 2		Reference to limitations of previous research	Presenting positive justification	Raising a question	
Move 3	**Occupying the niche**	**Presenting New Research**	**Presenting the Present Work** (citations possible)	**Introducing the Present Study**	**Introducing the Present Study**
○ Step 1	Step 1A: Outlining purposes	Reference to research purpose	Announcing present research descriptively and/or purposively	Stating purpose(s)	Stating objectives
	Step 1B:Announcing present research				
○ Step 2	Announcing principle findings	Reference to main research procedure	Presenting research questions or hypotheses	Describing procedure	Detailing procedures
○ Step 3	Indicating RA structure		Definitional clarifications	Presenting findings	Justifying decisions made
○ Step 4			Summarizing methods		Stating implications
○ Step 5			Announcing principal outcomes		
○ Step 6			Stating the value of the present research		
○ Step 7			Outlining the structure of the paper		

Appendix 2 The analytical framework

Move	Step
Move 1 = Presenting background information	*Step A = Claiming centrality*
	Step B = Making topic generalization
	Step C = Referring to previous research
Move 2 = Preparing for the present study	*Step A = Indicating gap*
	Step B = Giving positive justification
	Step C = Indicating contrastive result
	Step D = Counter-claiming
Move 3 = Introducing the present study	*Step A = Stating objective*
	Step B = Announcing present research
	Step C = Presenting research questions or hypotheses
	Step D = Describing procedure or research methodology
	Step E = Describing findings
	Step F = Stating the value of the present research

The explanation of moves

Move	Explanation
Move 1 Presenting background information	Provides background information, overview or related information in the research area to help readers of research articles understand the topic
Move 2 Preparing for the present study	Shows how the authors establish a niche for their research and prepares the readers for the next move, introducing new research
Move 3 Introducing the present study	Provides information of the present study

The explanation of steps

Step	Explanation
Move 1 Presenting background information	
Step A Claiming centrality	Shows that the research topic is useful, relevant, important, or worth investigating
Step B Making topic generalization	Gives overviews about the research field. The contents in this step can be knowledge, consensus, practice and description of phenomena.
Step C Referring to previous research	Mentions previous studies in the research. This step includes the information about the researchers who published these results and specification of the findings.

Step	Explanation
Move 2 Preparing for the present study	
Step A Indicating gap	Points out a research space that has not been studied yet
Step B Giving positive justification	Describes advantages or reasons for conducting the research
Step C Indicating contrastive result	Describes conflicting research results
Step D Counter-claiming	States the restraints and negative evaluation of previous research
Move 3 Introducing the present study	
Step A Stating objective	Gives purpose of the research. The objectives are stated explicitly by using the word "aim", "goal", "objective", etc.
Step B Announcing present research	Describes what the authors set out to do. The verbs used in this step include perform, examine, explore, apply, etc.
Step C Presenting research questions or hypotheses	States research question or hypothesis
Step D Describing procedure or research methodology	Gives information about research methodology or research procedure
Step E Describing findings	States the research findings
Step F Stating the value of the present research	States the value or implication from the findings in the present research

Appendix 3 Frequencies of occurrence of moves and steps in the two corpora

Move/Step	Thai journals (%)	International journals (%)
Move 1 Presenting background information	**100**	**100**
• *Step A Claiming centrality*	100	96
• *Step B Making topic generalization*	100	100
• *Step C Referring to previous research*	72	84
Move 2 Preparing for the present study	**88**	**100**
• *Step A Indicating gap*	44	68
• *Step B Giving positive justification*	32	12
• *Step C Indicating contrastive result*	28	28
• *Step D Counter-claiming*	8	40
Move 3 Introducing the present study	**100**	**96**
• *Step A Stating objective*	80	40
• *Step B Announcing present research*	20	80
• *Step C Presenting research questions or hypotheses*	16	12
• *Step D Describing procedure or research methodology*	4	4
• *Step E Describing findings*	4	12
• *Step F Stating the value of the present research*	8	12

Note: 100% = obligatory, 60-99% = conventional, less than 60% = optional

Appendix 4 Move patterns in Thai medical journal corpus

No.	Move pattern	No. of articles	Percentage (%)
1	M1>M2>M3	4	40
2	M1>M2>M1>M3	6	24
3	M1>M3	3	12
4	M1>M2>M1>M2>M3	3	12
5	M1>M2>M1>M2>M1>M2>M3	2	8
6	M1>M3>M1>M2	1	4
Total		**25**	**100**

Appendix 5 Linear and cyclical patterns in Thai medical journal corpus

Move pattern	No. of articles	Percentage (%)
Linear	13	52
M1>M2>M3		
M1>M3		
Cyclical	12	48
M1>M2>M1>M3		
M1>M2>M1>M2>M3		
M1>M2>M1>M2>M1>M2>M3		
M1>M3>M1>M2		

Appendix 6 Move patterns in international medical journal corpus

No.	Move pattern	No. of articles	Percentage (%)
1	M1>M2>M3	6	24
2	M1>M2>M1>M3	6	24
3	M1>M2>M1>M2>M3	5	20
4	M1>M3>M1>M2>M1>M3	2	8
5	M1>M2>M1	1	4
6	M2>M1>M2>M3	1	4
7	M1>M2>M1>M3>M1	1	4
8	M1>M2>M1>M2>M1>M3	1	4
9	M1>M2>M1>M3>M1>M3	1	4
10	M2>M1>M2>M1>M2>M1>M3	1	4
Total		**25**	**100**

Appendix 7 Linear and cyclical patterns in international medical journal corpus

Move pattern	No. of articles	Percentage
Linear	6	24%
M1>M2>M3		
Cyclical	19	76%
M1>M2>M1>M3		
M1>M2>M1>M2>M3		
M1>M3>M1>M2>M1>M3		
M1>M2>M1		
M2>M1>M2>M3		
M1>M2>M1>M3>M1		
M1>M2>M1>M2>M1>M3		
M1>M2>M1>M3>M1>M3		
M2>M1>M2>M1>M2>M1>M3		

Appendix 8 The comparison of proportion of cyclical and linear move patterns in the Introduction section in the two corpora